

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 27 December 2000 (27.12.00)	
International application No. PCT/EP00/04396	Applicant's or agent's file reference TS 0865 PCT
International filing date (day/month/year) 09 May 2000 (09.05.00)	Priority date (day/month/year) 13 May 1999 (13.05.99)
Applicant GOSSELINK, Johan, Willem et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
30 November 2000 (30.11.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Juan Cruz Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference TS 0865 PCT	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 00/ 04396	International filing date (day/month/year) 09/05/2000	(Earliest) Priority Date (day/month/year) 13/05/1999

Applicant

SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V.

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of Invention is lacking** (see Box II).

4. With regard to the title,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

**HYDROCARBON HYDROCONVERSION PROCESS FOR THE PRODUCTION OF HYDROGEN,
HYDROPROCESSED HYDROCARBONS AND ELECTRICITY**

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1
☐ None of the figures.

PO 00/04396

IPC 7 C10G47/00 C01B3/38

B. FIELDS SEARCHED

IPC 7 C10G C01B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 5 284 717 A (YAMASE OSAMU ET AL) 8 February 1994 (1994-02-08) the whole document ---	1-8,10, 15,18,19 9
A	US 3 463 611 A (HARITATOS NICHOLAS J ET AL) 26 August 1969 (1969-08-26) the whole document -----	1-6,9, 14,15, 18,19

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

25 September 2000

Date of mailing of the international search report

04/10/2000

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
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Authorized officer

De Herdt, 0

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

P 00/04396

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5284717 A	08-02-1994	JP 2941323 B	25-08-1999
		JP 3199294 A	30-08-1991
		DE 69009432 D	07-07-1994
		DE 69009432 T	15-09-1994
		EP 0435736 A	03-07-1991
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US 3463611 A	26-08-1969	NONE	
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference TS 0865 PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP00/04396	International filing date (day/month/year) 09/05/2000	Priority date (day/month/year) 13/05/1999
International Patent Classification (IPC) or national classification and IPC C10G47/00		
Applicant SHELL INTERNATIONALE RESEARCH ... et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 30/11/2000	Date of completion of this report 16.02.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Pielka, I Telephone No. +49 89 2399 8357 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/04396

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).):*

Description, pages:

1-24 as originally filed

Claims, No.:

1-24 as originally filed

Drawings, sheets:

1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/04396

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-24
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-24
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-24
	No:	Claims	

2. Citations and explanations
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

1. The subject-matter of claim 1 relates to a method for producing hydrogen, electricity and at least one hydroprocessed product from hydrocarbonaceous feedstock, where feedstock is hydrotreated in the presence of a catalyst to produce a hydroprocessed product and a hydrotreated feedstock and where hydrogen and electricity are produced from the hydrotreated feedstock, the hydrogen being recycled to the hydrotreating zone and/or passed on to a treatment to produce electricity.

This subject-matter is novel over that of the documents cited in the Search Report, notably US-A-5 284 717, or D1, and US-A-3 463 611, or D2.

D1 discloses a method for producing raw materials for a reformer by cracking and desulphurizing petroleum fuels and passing the product of the cracking and desulphurizing step to a steam reformer to produce a product gas comprising hydrogen, carbon monoxide and carbon dioxide, which passes to a shift converter before being passed to a fuel cell to generate electricity.

D1 does not disclose the recycle of hydrogen to the cracking zone or the separation of the products from the cracking zone.

In D2 hydrocarbon feedstock is hydrocracked, the effluent passing to a separator to produce a recycle gas, from which a purge gas is removed and partially oxidized to form hydrogen which is then separated and passed back to the hydrocracking zone (see claims 1, 4, 5 and 6).

D2 does not disclose the treatment of hydrotreated feedstock or hydrogen to produce electricity.

Claim 1 meets the requirements of **Article 33(2) PCT**.

2. With regard to the dependent claims, these also meet the requirements of **Article 33(2) PCT**, being dependent on claim 1.
3. With regard to the inventive step, the problem to be solved is the provision of an integrated process which provides hydrogen, electricity and one or more liquid hydrocarbon products, as indicated on page 3, lines 13 to 26. This problem has been solved by the claimed method, which could not have been derived from either D1 or D2, alone or in combination as D1 is not concerned with the provision

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP00/04396

of hydrogen or a hydrocarbon product and D2 is not concerned with the provision of electricity.

The claims meet the requirements of **Article 33(3) PCT**.

4. The subject-matter of claims 20 and 21 is defined in terms of a result to be achieved so that it is rendered unclear, i.e. " is operated in such a way that..".

Claims 20 and 21 do not meet the requirements of **Article 6 PCT**.